JUN 28 1930

BULLETIN OF BUSINESS RESEARCH

COLLEGE OF COMMERCE & ADMINISTRATION
THE OHIO STATE UNIVERSITY

Vol. V JUNE, 1930 Number 5

CONTENTS

	Page
The Business and Industrial Outlook	3
Business Conditions in Ohio	4
Business Conditions in Ohio Cities	7
The Trend of Business	10
Researches of the Bureau of Business Research	14
Simplified Procedure in the Statistical Analysis of Time Series	
Book Reviews	14
Preliminary Report on Ohio Employment for June	15
Convention Calendar	15
Bureau Publications	16

EDITED BY THE STAFF OF THE BUREAU OF BUSINESS RESEARCH
PUBLISHED MONTHLY AT THE UNIVERSITY PRESS COLUMBUS OHIO

COLLEGE OF COMMERCE AND ADMINISTRATION
W. C. Weidler, Dean

BUREAU OF BUSINESS RESEARCH STAFF

Spurgeon Bell, Director

Viva B. Boothe
Howard G. Brunsman
L. H. Grinstead
W. D. Hooper
H. W. Widener
Willis Wissler

Copyrighted, 1926
by
THE OHIO STATE UNIVERSITY

Entered as second class matter March 3, 1926, at the post office at Columbus, Ohio, under the Act of August 24, 1912.

Acceptance for mailing at the special rate of postage provided for in section 1103, Act of October 3, 1917, authorized March 3, 1926.

BULLETIN OF BUSINESS RESEARCH

VOL. V JUNE, 1930 NUMBER 5

THE BUSINESS AND INDUSTRIAL OUTLOOK

Although the decline in most lines of business activity in May from April was small, there were few signs calculated to stimulate optimism as to an immediate recovery in business to the high levels of 1929, and no significant signs of revival have appeared thus far in June. It is a fact that abundant credit at declining rates of interest is available, and insofar as the absence of these two factors would be a serious impediment to a revival, it may be said that their availability is a favorable factor in the present situation. Since, however, funds are available and rates are low largely because business has been unable to absorb them, it is questionable whether the mere presence of these factors at the present time can be considered of great significance. It should be kept in mind in considering the present recession in business that business activity is by no means at a standstill, nor even in reduced volume in many lines of industry, except in comparison with the boom year of 1929. The record thus far in 1930 in many of the basic industries compares favorably with the records of 1927 and 1928 which were accepted as satisfactory until the enthusiasm for larger output and greater profits engendered by the success of those years forced the unprecedented expansion of 1929.

Current reports in the iron and steel industry offer little hope for a slackening of the decline in production in the immediate future. Average prices in May showed a still further decline from the low prices of April when the composite iron and steel price index reached a point lower than any reached since 1922. Although the decline in the average daily production of pig iron in the United States in May from April was little more than the normal seasonal decline, the decline of 7 per cent in the average daily production of steel was considerably greater than the usual seasonal decline of 3 per cent. With steel ingot production averaging only 72 per cent for the country as a whole at the end of the first week in June, as compared with 77 per cent at the end of the first week in May, and 80 per cent at the close of April, the outlook for any increase in steel production in June seems extremely slight. The shift in steel demand in April from the railroads to the automobile industry foreshadowed the May decline in steel demand in view of the fact that the railroad steel demand was the sustaining feature of steel demand during the first quarter. The fact that pipe line contracts are the chief source of quantity demand at present does not point to increased activity in the iron and steel industry in June.

The decline in the volume of business as compared with last year is emphasized by the continued decline in the volume of freight car loadings in May and through the first half of June, and by additional reports of declines for the first quarter in railroad and corporation earnings. In this connection it should be emphasized again, however, that although earnings have declined in 1930 as compared with the high rates of 1929, railroads and corporations are still reporting fairly satisfactory earnings judged by standards other than those of 1929.

The construction industry in May showed something more than the usual seasonal decline, and the chief optimistic note for the future lies in the fact that the index of floor space in residential building has been slightly upward for the past two months, while the index of non-residential floor space has been downward, which divergence in the trend of the two indexes has usually been associated upon past occasions with a revival following a recession. Public works and utilities was the only type of construction to show a gain over the first five months of last year. Residential contracts for the first five months of 1930 were 431 million dollars behind the corresponding period of last year, and non-residential contracts, 118 million dollars behind. Public works and utilities were 101 million dollars ahead of the first five months of last year.

The production of automobiles in the United States in April, although somewhat greater than in March, showed a marked decline from April of last year, while production for the first quarter of 1930 was 32.7 per cent less than for the same period last year. The Ford production schedule for June calls for 10,000 fewer units than in May, as does also the production schedule for Chevrolets. Other automobile manufacturers, except Buick and Chrysler who are starting on new models, are likewise cutting production schedules for June.

The very slight increase of .5 of 1 point in the all commodity price index on June 3 as compared with May 5, covered new low records for silver, rubber, and raw silk, and a substantial decline in textiles. There was, however, an encouraging price increase in farm and food products, with a minor increase in the metals. In all other groups of commodities, however, prices continued to decline in May, even though new post-war lows in many commodities had been reached in April. The continued price decline in spite of reduced production schedules in most of the basic industries further demonstrates the extent to which earlier production schedules were out of line with demand. The fact that the general price decline is international in scope, combined with the fact that our merchandise exports have already started to decline, leaves little basis for the hope that increased foreign demand for American merchandise at the prevailing low prices might initiate a trade revival.

The volume of department store sales in the Cleveland district in May was 3 per cent behind the volume in last May, while the volume for the first six months of 1930 was 6 per cent behind the corresponding period of last year. The gross cash agricultural income from six important sources in Ohio in May was 1.2 per cent less than in April, and 9.8 per cent less than in May, 1929.

The slight increase in total industrial employment in Ohio in April was not sustained in May when there was a decline of 1 per cent from April although the average April-to-May change for the past five-year period has been an increase of 1 per cent.

Money rates continued to decline rapidly in May. The time money rate, adjusted for seasonal variation, reached the lowest point since November, 1924, and the seasonally adjusted rate on 60-to-90-day time loans, the lowest point since December, 1924. The call money rate on June 13 was 3 per cent, and in the outside market loanable funds were unabsorbed at the low rate of 2 per cent.

The decline of $267,000,000 in brokers loans following the last-of-April break in the stock market was followed

by a $94,000,000 increase during the three weeks ended June 4. All of this increase, however, and $9,000,000 more was wiped out during the week ended June 11 when there was a reduction of $103,000,000 in loans to brokers following the stock market collapse of the previous week. It is significant that although brokers loans have declined in New York, most of the decline has occurred on "accounts of others," while loans on "own account" have increased, indicating the increasing tendency for New York bankers to become involved in stock market financing. The volume of such loans outstanding indicates that the banks are heavily involved at the present time in such financing, and at the present rate of increase in loans on securities it seems only a matter of time until the total for security loans will be greater than the total for commercial purposes.

Although the stock market reaction of April was the worst suffered since the December set back, the collapse during the first two weeks of June carried the whole market below the previous April low. In the decline of June 18, a survey of the list showed that many stocks made new lows for the year or longer while several stocks were only a few points above their lows of November. In spite of the recent declines in the stock market, however, many stock prices are still far from low when judged on an earnings basis. The general industrial averages are still at the level of 1928 and early 1929, and it may be reasonably questioned whether present prices can be indefinitely sustained in the face of the continued business recession that seems inevitable for the next two months, and the unfavorable earnings reports that are almost certain to appear during the next four months. However, in view of the quantity of funds now available for speculation at declining rates of interest, it is quite possible that the business situation will again not dominate the immediate outlook for the stock market, although continued evidence of depression is likely to force prices to still lower levels before a sustained upward trend is again established.

Viva Boothe, Assistant Editor

BUSINESS CONDITIONS IN OHIO

Employment in Ohio

The decline of 1 per cent in total industrial employment in Ohio in May from April is in contrast to a 5-year average April-to-May increase of 1 per cent. Total industrial employment in Ohio in May was 14 per cent less than in the corresponding month of last year, and the volume of employment for the first 5 months of 1930 was 13 per cent less than for the corresponding period of 1929. Total manufacturing employment in the State declined 1 per cent in May from April, 16 per cent from May, 1929, and averaged 15 per cent less during the first 5 months of this year than during the same period of last year. The decline of 1 per cent in total manufacturing employment in the State in May from April is in contrast to a relatively stable condition of employment as indicated by the average change for the past 5 years, while the decline of 1 per cent in non-manufacturing employment in the State in May from April was in contrast to a 5-year average increase of 1 per cent in May from April. Non-manufacturing employment in May was 7 per cent less than in May, 1929, and averaged 3 per cent less for the first 5 months of 1930 than for the corresponding period of 1929. The decline of 1 per cent in construction employment in May from April compares unfavorably with a 5-year average increase of 14 per cent, and the decline of 16 per cent from May, 1919, is all the more significant when it is remembered that construction employment in May of last year was already low. The decline in all types of employment in Ohio in May from April represents more than a seasonal decline in view of the fact that during the past 5 years total industrial employment, construction employment, and non-manufacturing employment have usually increased in May from April, and manufacturing employment has shown no tendency to decline. The decline in total industrial employment in May from April was caused primarily by further declines in the chemicals, the machinery, the metal products, the paper and printing, and the textiles groups. The stone, clay and glass prod-

TABLE I

EMPLOYMENT IN OHIO INDUSTRIES, MAY, 1930

Average Month 1926 = 100

Industry	Index May 1930	Ch'ge May 1930 from April 1930	Aver. Change May from April 1925-29	Change May 1930 from May 1929	Average Jan-May 1930 Change from 1929
		%	%	%	%
Total Manufacturing (640)*	93	— 1	0	—16	—15
CHEMICALS (22)	82	— 2	— 2	—16	—13
FOOD PRODUCTS (52)	121	+ 2	+ 2	— 1	+ 1
Bakery (17)	121	+ 5	+ 2	+ 2	+ 4
Miscellaneous (35)	116	+ 1	+ 2	— 2	0
LUMBER PRODUCTS (30)	91	+ 2	— 2	+ 2	— 4
Furniture (14)	75	+ 1	— 4	—10	—13
Miscellaneous (16)	104	+ 3	0	+10	+ 1
MACHINERY (106)	102	— 1	+ 1	—11	— 9
Electrical Machinery, Apparatus and Supplies (21)	124	— 1	+ 4	— 6	— 5
Machine Tools (18)	93	+ 4	+ 1	—26	—24
Material Handling and Power Machinery (21)	90	+ 2	— 1	— 7	— 9
Special Purpose Machinery and Appliances (46)	95	— 3	— 1	—12	— 7
METAL PRODUCTS (166)	89	— 2	0	—15	—12
Foundry Products and Drop Forgings (41)	94	— 3	— 1	—24	—18
Pipe, Pumps, Valves, Plumbers' Supplies (17)	79	— 2	— 1	— 9	— 6
Screw Machine Products and Hardware (23)	97	0	— 1	—21	—20
Sheet Metal Work (26)	93	— 1	0	—13	— 8
Steel Works and Rolling Mills (17)	89	— 2	0	—13	—11
Stoves and Furnaces (11)	87	— 2	— 1	—16	—10
Miscellaneous (31)	94	— 1	— 1	— 9	— 6
PAPER AND PRINTING (43)	107	— 1	0	— 1	+ 3
Paper, Inc. Stationery (11)	121	+ 2	0	+ 8	+ 9
Printing & Publishing (25)	105	— 2	+ 1	— 5	+ 2
Miscellaneous (7)	97	— 2	0	+ 2	+ 1
RUBBER PRODUCTS (24)	91	+ 2	+ 1	—22	—20
Tires and Tubes (14)	90	+ 2	+ 1	—22	—19
Miscellaneous (10)	95	— 1	— 4	—23	—24
STONE, CLAY, AND GLASS PRODUCTS (61)	86	0	+ 1	—14	—13
Brick and Tile (22)	83	+ 2	+ 2	—21	—21
Glass (8)	99	+ 1	+ 1	—11	— 7
Vitreous and Semi-Vitreous China and Pottery (15)	72	— 6	— 1	—18	—13
Miscellaneous (16)	83	+ 2	0	—13	—16
TEXTILES (44)	98	— 4	— 1	—11	— 6
Men's Clothing (19)	103	— 6	— 1	— 5	0
Miscellaneous (25)	95	— 1	0	—15	—11
VEHICLES (60)	101	0	— 1	—28	—32
Autos and Parts (49)	104	— 1	— 1	—31	—35
Cars, Steam and Street Railway (6)	80	— 1	+ 2	+ 2	+30
Miscellaneous (5)	85	+ 4	— 5	+ 9	+ 9
MISCELLANEOUS MANUFACTURING (32)	93	0	0	— 4	— 5
Non-Manufacturing (56)	105	— 1	+ 1	— 7	— 3
SERVICE (13)	120	+ 1	+ 2	+ 4	+ 3
TRADE (RET. & WH.) (25)	99	— 3	0	— 3	— 4
TRANSPORTATION AND PUBLIC UTILITIES (21)	113	0	+ 3	— 5	+ 2
Construction (198)	89	— 1	+14	—16	— 5
BRICK, STREET, AND CEMENT WORK (16)	83	+ 8	+ 4	— 3	— 4
GEN. CONTRACTING (124)	103	— 8	+11	—20	— 3
PLUMB. & STEAM FIT. (12)	97	— 3	+ 1	— 4	— 7
STREET, ROAD, AND SEWER WORK (23)	82	+49	+45	+26	+16
MISCELLANEOUS (23)	87	+ 1	+ 4	—20	—16
All Industries (897)	96	— 1	+ 1	—14	—13

* Figures in parentheses indicate number of reporting firms.

ucts, the vehicles, and the miscellaneous manufacturing groups showed no change in employment in May from April, while the food products, the lumber products, and the rubber products groups showed an increase. As compared with May, 1929, there was a decline in employment in all groups except the lumber products group which showed an increase of 2 per cent (Table I). The decline in employment in May as compared with May, 1929, amounted to 28 per cent in the vehicles group, 22 per cent in the rubber products group, 16 per cent in the chemicals group, 15 per cent in the metal products group, 14 per cent in the stone, clay, and glass products group, and 11 per cent in the lumber products and the textiles groups.

CHART I

MANUFACTURING EMPLOYMENT

Average Month 1926 Equals 100

U. S. Index from U. S. Department of Labor

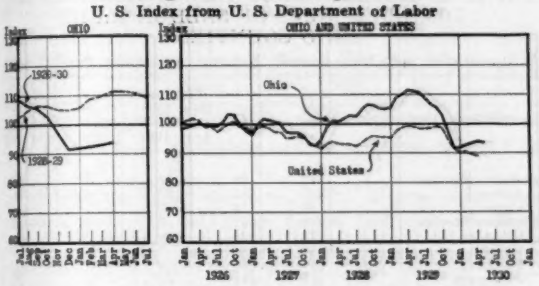


Chart I shows that the relative increase in the volume of manufacturing employment in Ohio since January, 1930, has been in contrast to the continued decline in the United States, but that since September, 1929, the volume of manufacturing employment in Ohio has been less each month than for the corresponding month of last year.

Ohio Bank Debits

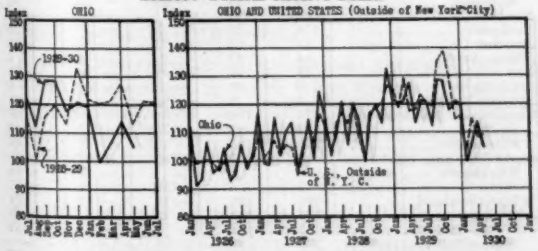
Bank debits in Ohio declined 8 per cent in May from April, and 7 per cent from May, 1929. The April-to-May decline in bank debits, however, was less than the 5-year

CHART II

BANK DEBITS

Average Month 1926 Equals 100

Source: Federal Reserve Board



average April-to-May decline (Table VIII). Chart II shows a close correspondence between the trend in bank debits in Ohio and in the United States during the period from January, 1926, to date. It is significant to note that the April-to-May decline in bank debits in Ohio compares with a slight increase in bank debits in the United States outside of New York City.

Ohio Construction Contracts Awarded

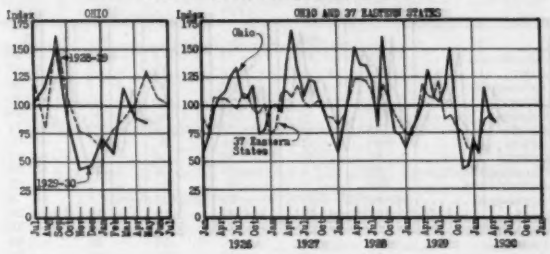
There was a decrease of 3 per cent in the value of construction contracts awarded in Ohio in May from April, and of 35 per cent from May, 1929. The decline in the value of construction contracts awarded in the State in May from April is in contrast to a 5-year average increase of 4 per cent for the same period (Table VIII). The 1 per cent decline in construction employment in Ohio in May from April compares poorly with a 5-year average increase of 14 per cent in May from April, and it is significant that the total volume of construction employment in May was 16 per cent less than in May, 1929. Chart III shows that although the March-to-April decline in the value of construction contracts awarded in Ohio was substantially greater than the decline in the United States, the April-to-May decline was greater in the United States than in Ohio.

CHART III

CONSTRUCTION CONTRACTS AWARDED

Based on Average Daily Value, 1926 Equals 100

Source: F. W. Dodge Corporation



Automobile Bill-of-Sale Registration

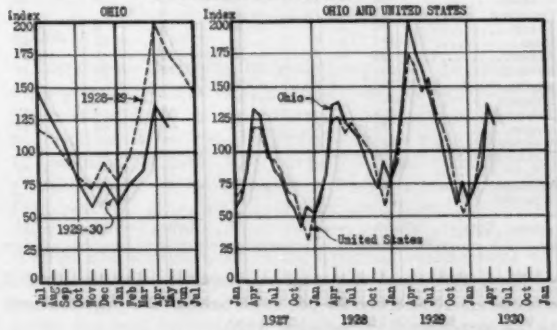
Passenger automobile bill-of-sale registrations in Ohio declined 11 per cent in May from April, and were 32 per cent less than in May, 1929. Bill-of-sale registrations of trucks in Ohio declined 10 per cent in May from April and 15 per cent from May, 1929 (Table II). In the eight chief counties of Ohio, bill-of-sale registrations of new passenger automobiles declined 13 per cent in May from April, 32 per cent from May, 1929, and for the first 5 months

CHART IV

NEW PASSENGER CAR SALES

Based on Average Daily Registrations of Bills of Sale 1926 Equals 100

U. S. Figures from R. L. Polk & Co.



of 1930 were 33 per cent behind the corresponding period of 1929. The bill-of-sale registrations of Ford motors continued to outnumber the bill-of-sale registrations of General Motors in the eight chief counties

of the State in May. It is significant to note that, although there was a decline in the bill-of-sale registrations of Ford Motors in May from April in these counties, the number of Ford registrations in May was substantially greater than in May of last year, and the total Ford registrations for the first 5 months of 1930 were still somewhat ahead of the total for the corresponding period of last year. The May registrations of General Motors cars, however, in the same counties, were 37 per cent behind registrations in May, 1929, and the total registrations for the first 5 months of 1930 were 34 per cent behind the registrations in the corresponding period of 1929.

The Ford continued to hold first place in the eight chief counties of Ohio as to the total number of registrations with 41.6 per cent of the total for May as compared with 40.2 per cent in April, and with 26.4 per cent in May, 1929. The Chevrolet held second place in May with 18.9 per cent of total registrations as compared with 18.9 per cent in April, and with 17.4 per cent in May, 1929. The combined registrations of Fords and Chevrolets accounted for 60.5 per cent of the total registrations in the eight chief counties of Ohio in May. In April, the Ford and the Chevrolet accounted for 66 per cent of the total registrations in the United States. Chart IV shows that bill-of-sale registrations of new passenger automobiles in Ohio have declined each month from the corresponding month of the previous year since October, 1929, and that the decline in Ohio has paralleled, in general, the decline in the country as a whole since April, 1929, except in December when registrations in Ohio showed a slight upward trend while registrations in the United States continued downward.

TABLE II

REGISTRATIONS OF NEW AUTOMOBILE BILLS OF SALE IN OHIO COUNTIES, MAY, 1930

(The Counties Listed Represent Over 80 Per Cent of the Population of Ohio)

Source: Clerks of Courts of Listed Counties

County	Passenger Cars			Trucks		
	No.	Change from April 1930	Change from May 1929	No.	Change from April 1930	Change from May 1929
		%	%		%	%
Adams	69	— 37	— 14	4	— 50	— 20
Allen	250	+ 5	— 17	41	— 7	+ 52
Ashtabula	298	— 14	— 39	32	+ 3	— 36
Athens	125	— 6	— 6	19	— 21	+ 36
Belmont	267	0	— 26	15	— 21	— 48
Brown	53	+ 43	— 27	5	0	— 17
Butler	296	— 11	— 19	26	— 28	— 32
Carroll	53	— 29	— 34	3	— 25	— 50
Champaign	76	— 4	— 49	2	— 50	— 83
Columbiana	328	— 7	— 41	30	+ 7	— 29
Cuyahoga	4,863	— 13	— 20	480	+ 8	+ 5
Darke	112	— 16	— 48	13	— 19	— 28
Defiance	51	— 20	— 58	7	— 42	— 53
Fairfield	149	+ 3	— 19	14	— 30	— 33
Fayette	35	— 3	— 44	5	— 50	— 29
Franklin	1,235	— 14	— 34	163	+ 21	— 2
Fulton	123	— 25	— 30	9	— 31	0
Gallia	65	— 21	— 8	3	— 88	— 57
Geauga	58	+ 12	— 26	3	— 25	— 40
Guernsey	171	+ 21	+ 8	18	+ 20	+ 13
Hamilton	1,885	— 11	— 26	233	— 9	— 36
Hancock	81	— 26	— 50	4	— 67	— 43
Henry	78	— 1	— 50	6	— 54	+ 50
Highland	80	+ 27	— 25	3	— 82	+200
Hocking	41	— 21	— 34	9	— 18	— 36
Huron	131	— 15	— 37	10	— 23	— 47
Jackson	100	— 4	— 9	7	— 36	+ 17
Jefferson	341	+ 7	— 14	21	— 42	— 38
Knox	133	+ 1	— 33	14	— 13	+ 27
Lake	207	— 13	— 22	22	— 41	— 29
Lawrence	95	— 3	— 39	12	— 14	— 37
Licking	196	— 5	— 38	13	— 66	— 41
Lorain	367	— 19	— 32	35	— 26	— 10
Lucas	996	— 8	— 47	115	+ 1	— 11
Mahoning	727	+ 1	— 35	101	+ 51	—
Medina	138	— 19	— 38	8	— 43	— 67
Meigs	87	— 2	— 7	15	— 40	+ 67
Miami	171	— 3	— 44	27	+ 17	— 21
Montgomery	763	— 25	— 38	88	— 14	— 19
Morgan	31	— 9	— 31	5	+ 67	+ 25
Morrow	30	— 3	— 49	1	— 67	0
Muskingum	283	—	— 10	8	—	— 20
Ottawa	86	— 12	— 46	8	0	— 20
Paulding	29	— 17	— 56	0	—	—
Perry	97	— 7	— 27	8	0	+ 14
Ross	121	— 7	— 12	11	— 31	— 45
Scioto	195	— 11	— 28	32	— 9	+ 28
Seneca	158	— 11	— 43	18	+ 13	— 14
Stark	797	— 17	— 38	—	—	—
Summit	1,287	— 15	— 45	—	—	—
Trumbull	469	0	— 40	29	0	— 37
Union	45	+ 18	— 24	5	— 44	— 17
Warren	59	— 21	— 47	3	— 73	0
Washington	158	— 3	—	10	— 68	—
Wayne	228	— 14	— 37	22	— 49	+ 83
Williams	112	— 25	— 46	6	+ 50	+ 50
Wyandot	71	— 10	— 23	7	+ 75	0
Actual Total	19,550	— 11	— 32	1,803	— 10	— 15

TABLE III

TOTAL REGISTRATION OF NEW PASSENGER AUTOMOBILE BILLS OF SALE IN EIGHT OHIO COUNTIES*

In Cooperation with Ohio Council, National Automobile Dealers' Assn.

Make of Car	April 1930	May 1930	Change May, 1930 from Apr., 1930	Change from May 1929	Jan.-May 1930 Change from 1929
			%	%	%
Auburn Motors	123	98	— 20	— 25	— 25
Auburn	107	82	— 23	— 37	— 34
Cord	16	16	0	—	—
Chrysler Motors	1,207	1,231	+ 2	— 9	— 13
Chrysler	374	300	— 20	— 11	— 11
DeSoto	250	233	— 7	— 18	— 13
Dodge	290	267	— 8	— 30	— 33
Plymouth	293	431	+ 47	+ 26	— 13
Durant	116	102	— 12	— 61	— 43
Elcar	0	1	—	— 86	— 96
Ford Motors	5,833	5,243	— 10	+ 7	+ 1
Ford	5,806	5,216	— 10	+ 7	+ 1
Lincoln	27	27	0	— 34	— 36
Franklin	69	47	— 32	— 24	+ 46
Gardner	9	21	+133	+ 40	— 42
General Motors	4,557	3,760	— 17	— 37	— 34
Buick	339	261	— 23	— 49	— 47
Cadillac	65	68	+ 5	+ 3	— 30
Chevrolet	2,727	2,371	— 13	— 26	— 26
LaSalle	63	65	+ 3	— 40	— 37
Marquette	82	75	— 9	—	—
Oakland	136	110	— 19	— 34	— 25
Oldsmobile	440	347	— 21	— 58	— 51
Pontiac	686	444	— 35	— 59	— 52
Viking	19	19	0	— 51	+ 52
Graham-Paige	260	186	— 28	— 54	— 54
Hudson Motors	658	534	— 19	— 69	— 67
Essex	438	355	— 19	— 74	— 72
Hudson	220	179	— 19	— 50	— 48
Hupmobile	192	137	— 29	— 57	— 36
Jordan	7	7	0	— 80	— 77
Kissel	1	1	0	— 50	— 64
Locomobile	0	0	—	—	—
Marmon Motors	97	86	— 11	— 61	— 33
Marmon	57	59	+ 4	+ 4	— 20
Roosevelt	40	27	— 33	— 84	— 42
Nash	204	202	— 1	— 62	— 62
Packard	176	150	— 15	— 28	— 38
Peerless	87	69	— 21	— 50	— 49
Pierce-Arrow	49	37	— 24	— 37	+ 2
Reo	58	45	— 22	— 49	— 32
Rolls-Royce	0	2	—	+100	0
Stearns-Knight	4	2	— 50	— 85	— 77
Studebaker Motors	275	196	— 29	— 40	— 40
Erskine	48	13	— 73	— 35	+102
Studebaker	227	183	— 19	— 40	— 49
Stutz Motors	2	5	+150	— 67	— 60
Blackhawk	0	1	—	— 83	— 69
Stutz	2	4	+100	— 56	— 57
Willys-Overland	450	389	— 14	— 74	— 74
Whippet	192	169	— 12	— 85	— 85
Willys-Knight	135	131	— 3	— 67	— 62
Willys-Six	123	89	— 28	—	—
Windsor	2	2	0	— 50	— 13
Miscellaneous	0	0	—	—	— 99
GRAND TOTAL	14,436	12,553	— 13	— 32	— 33

* Cuyahoga, Franklin, Hamilton, Lucas, Mahoning, Montgomery, Stark, and Summit.

Industrial Consumption of Electric Power

The consumption of electric power by industries in Ohio decreased in April from March in the State and in Youngstown, and increased in Akron, Dayton, and Toledo. The March-to-April decline in the State was greater than the

TABLE IV

SALES RANKING OF LEADING MAKES OF PASSENGER AUTOMOBILES

Based on Bill-of-Sale Registrations

Percentage of Total Bill-of-Sale Registrations

Make of Car	Eight* Ohio Counties					U. S.†
	Rank	May 1930	April 1930	May 1929	Jan.-May 1930	April 1930
Ford	1	41.6	40.2	26.4	41.0	42.0
Chevrolet	2	18.9	18.9	17.4	19.9	24.0
Pontiac	3	3.5	4.8	5.8	3.9	3.2
Plymouth	4	3.4	2.0	1.9	2.1	1.9
Essex	5	2.8	3.0	7.5	3.3	2.5
Oldsmobile	6	2.8	3.0	4.5	2.8	2.1
Chrysler	7	2.4	2.6	1.8	2.2	2.2
Dodge	8	2.1	2.0	2.1	2.0	2.6
Buick	9	2.1	2.3	2.8	2.0	3.0
DeSoto	10	1.9	1.7	1.5	2.0	1.4
Nash	11	1.6	1.4	2.9	1.5	1.5
Graham	12	1.5	1.8	2.2	1.3	1.3
Studebaker	13	1.5	1.6	1.7	1.3	1.3
Hudson	14	1.4	1.5	1.9	1.6	1.2
Whippet	15	1.3	1.3	6.1	1.5	.8
Group Totals		88.8	88.1	86.5	88.4	91.0
All Others		11.2	11.9	13.5	11.6	9.0
Grand Total		100.0	100.0	100.0	100.0	100.0

*Cuyahoga, Franklin, Hamilton, Lucas, Mahoning, Montgomery, Stark, and Summit.

†Based on license registrations in 38 states reported by Polk & Co.

normal decline from March-to-April. As compared with April of last year, there was also a decline in the State and in Akron, Toledo, and Youngstown, but for the first four months of 1930 there was a slight increase in the State as compared with the first four months of 1929.

TABLE V

INDUSTRIAL CONSUMPTION OF ELECTRIC POWER IN OHIO

Average Month 1926 Equals 100

Source: Local Power Companies

City	Index April, 1930	Change April, 1930 from Mar., 1930	Average Change April, from Mar., 1925-1929	Change April, 1930 from Apr., 1929	Average Jan.-April, 1930 Change from 1929
Akron	92	+36%	+16%	— 9%	—18%
Dayton	139	+12	+ 9	+ 7	+ 3
Toledo	150	+ 3	+ 3	—16	—17
Youngstown	105	— 1	— 1	—27	—24
STATE*	126	— 4	— 2	— 6	+ 1

*Total power production from *U. S. Geological Survey.*

Building Vacancies in Ohio Cities

Building vacancies as indicated by the percentage of idle gas meters decreased in April from March in Cleveland and Youngstown, and increased in Akron and Columbus. As compared with April of last year there was a substantial decline in building vacancies in Cleveland and Youngstown and a slight increase in Akron and Columbus. The March-to-April decline in Youngstown was greater than the normal seasonal decline, and the decline in Cleveland compares with a normal seasonal decrease.

TABLE VI

BUILDING VACANCY IN OHIO CITIES

(As Indicated by Percentage of Gas Meters Vacant)

Average Month 1926 Equals 100

Source: Local Gas Companies

City	Index April, 1930	Change April, 1930 from Mar., 1930	Average Change April, from Mar., 1925-1929	Change April, 1930 from Apr., 1929	Average Jan.-April, 1930 Change from 1929
Akron	105	+ 4%	0%	+ 5%	+ 5%
Cleveland	29	— 6	+ 1	—14	—15
Columbus	120	+ 1	— 5	+ 3	— 9
Youngstown	33	—17	— 5	—34	—25

Agricultural Income in Ohio

The changes in the gross cash agricultural income in various lines of agricultural products are shown in Table VII. There was a decrease of 1.2 per cent in the gross cash income from all sources shown in the table in May as compared with April, and a decrease of 9.8 per cent from May, 1929. For the first four months of 1930, the gross cash agricultural income from these sources was 7.1 per cent less than in the corresponding period of last year. The decline in May from April was caused primarily by the decreases in the meat animals, the poultry and eggs, and the tobacco groups, while the decline from May of last year was caused primarily by the decreases in the meat animals, the dairy products, and the wool groups. During the first five months of 1930, the grains, the potatoes, and the tobacco groups showed substantial gains over the corresponding period of last year.

TABLE VII

GROSS CASH AGRICULTURAL INCOME IN OHIO MAY, 1930

(Average of the 60 Months 1924-1928 Equals 100)

Source: Department of Rural Economics, Ohio Agricultural Experiment Station

Commodity	Index May 1930	Change May, 1930 from Apr., 1930	Change May, 1930 from May, 1929	Average Jan.-May, 1930 Change from 1929
		%	%	%
Meat Animals	88	— 6.4	— 6.4	— 6.9
Dairy Products	94	+ 5.6	— 17.5	— 18.0
Grains	51	+ 13.3	+ 41.7	+ 33.0
Poultry and Eggs	99	— 1.0	— 24.4	— 14.5
Potatoes	19	+ 5.6	+171.4	+159.8
Wool	106	+278.6	— 41.1	— 35.8
Tobacco	116	— 52.1	+ 45.0	+ 24.9
TOTAL	83	— 1.2	— 9.8	— 7.1

BUSINESS CONDITIONS IN OHIO CITIES

Business conditions in Ohio cities in May as reflected in industrial, manufacturing, and construction employment, and in construction contracts awarded, bank debits, and passenger automobile bill-of-sale registrations, are shown in Table VIII.

Akron

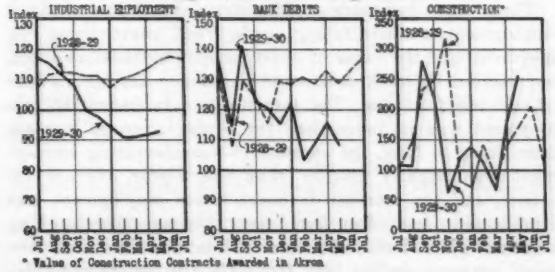
There were increases in May from April in industrial employment, manufacturing employment, construction employment, and the value of construction contracts awarded, but declines in bank debits and passenger automobile bill-of-sale registrations. The increase in total industrial employment was no more than the 5-year average increase from April to May, the increase in manufacturing employment was slightly greater than the 5-year average increase, and the increase in construction employment was considerably less than the 5-year average April-to-May increase. The decline in bank debits was less than the usual seasonal decline, and the decline in passenger automobile bill-of-sale registrations was somewhat greater than the usual seasonal decline. As compared with May, 1929, there was a decline in industrial and manufacturing employment, bank debits, and passenger automobile bill-of-sale registrations, but an increase in construction em-

TABLE VIII
SUMMARY OF BUSINESS CONDITIONS IN OHIO CITIES, MAY, 1930

City	Change May from April 1930	Average Change May from April 1925-29	Change May, 1930 from May 1929	Change May from April 1930	Average Change May from April 1925-29	Change May, 1930 from May 1929
	Industrial Employment			Manufacturing Employment		
	%	%	%	%	%	%
Akron	+ 1	+ 1	—20	+ 1	0	— 21
Canton	— 1	0	—11	— 3	— 1	— 12
Cincinnati	— 1	+ 1	— 8	— 2	0	— 11
Cleveland	— 2	0	—14	— 1	— 1	— 17
Columbus	+ 1	0	— 7	+ 1	— 1	— 7
Dayton	— 2	+ 2	— 9	— 2	+ 2	— 11
Toledo	+ 1	— 1	—34	+ 2	— 1	— 38
Youngstown	+ 3	+ 1	— 8	+ 3	+ 1	— 8
Other than 8 cities	0	+ 1	— 4	— 1	0	— 9
STATE	— 1	+ 1	—14	— 1	0	— 16
	Construction Employment			Value of Construction Contracts Awarded		
Akron	+18	+33	+12	+ 41	+ 29	+ 49
Canton	+46	+16	+13	— 17	—	— 59
Cincinnati	+ 5	+12	— 7	— 22	— 11	— 28
Cleveland	—18	+20	—17	— 44	— 17	— 23
Columbus	+ 5	+13	— 3	+ 20	+ 22	— 76
Dayton	+ 3	+ 9	+ 9	— 81	— 32	+ 20
Toledo	— 6	— 3	—39	+195	— 48	+ 25
Youngstown	— 2	+22	—43	— 80	— 13	— 69
Other than 8 cities	+27	+15	—24	+ 17	—	— 41
STATE	— 1	+14	—16	— 3	+ 4	— 35
	Bank Debits			Passenger Automobile Bills-of-Sale Filed		
Akron	— 6	— 8	—16	— 15	— 6	— 45
Canton	—15	—17	—10	— 17	— 9	— 38
Cincinnati	—14	—13	—12	— 11	— 7	— 26
Cleveland	— 7	—12	— 5	— 13	— 6	— 20
Columbus	— 7	— 9	+ 1	— 14	— 10	— 34
Dayton	— 5	— 7	— 7	— 25	— 25	— 38
Toledo	— 2	— 5	—13	— 8	+ 6	— 47
Youngstown	— 5	— 9	+ 5	+ 1	— 16	— 35
Other than 8 cities	— 5	— 8	—12	— 8	—	— 32
STATE	— 8	—11	— 7	— 11	—	— 32

ployment and the value of construction contracts awarded. The increases in construction activity as compared with last year are less significant when it is recalled that activity in construction was exceedingly quiet throughout 1929. Business conditions in Akron appear more favorable in comparison with the previous month than with the same month of last year.

CHART V
BUSINESS CONDITIONS IN AKRON
Average Month 1926 Equals 100

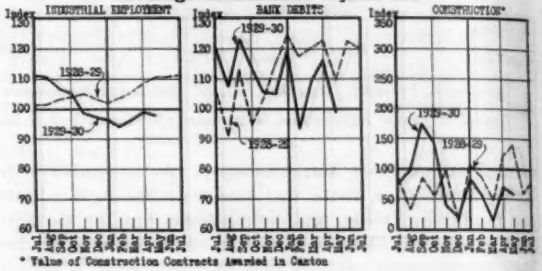


* Value of Construction Contracts Awarded in Akron

Canton

In Canton, there was a decline in May from April in industrial and manufacturing employment, the value of construction contracts awarded, bank debits, and passenger automobile bill-of-sale registrations, and an increase in construction employment. The declines in industrial and manufacturing employment in May from April represents more than a seasonal decline, although the increase in construction employment represents something more than a seasonal increase. The decline in bank debits was less than the usual seasonal decline, and the decline in passenger automobile bill-of-sale registrations was greater than the usual decline. As compared with May, 1929, there was a decline in all forms of activity as shown in Table VIII except in construction employment which showed a 13 per cent increase from May of last year. Business conditions in Canton appear to have declined in May both as compared with April and with May, 1929.

CHART VI
BUSINESS CONDITIONS IN CANTON
Average Month 1926 Equals 100

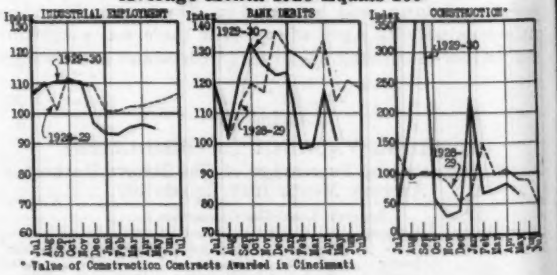


* Value of Construction Contracts Awarded in Canton

Cincinnati

The declines in industrial and manufacturing employment in Cincinnati in May from April were greater than the 5-year average April-to-May decline, as was also the decline in the value of construction contracts awarded, bank debits, and passenger automobile bill-of-sale registrations, while the slight increase in construction employment was considerably less than the 5-year average increase from April-to-May. As compared with May, 1929, there was a decline in all types of employment in Cincinnati in May, and in the value of construction contracts awarded, bank debits, and passenger automobile bill-of-sale registrations. Business conditions in Cincinnati in May appear to have declined both as compared with April and with May of last year

CHART VII
BUSINESS CONDITIONS IN CINCINNATI
Average Month 1926 Equals 100



* Value of Construction Contracts Awarded in Cincinnati

Cleveland

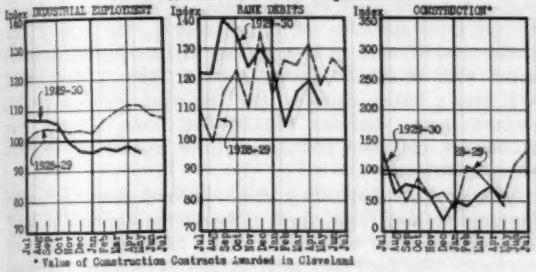
The decline in all types of employment in Cleveland in May from April was greater than the usual seasonal decline, and the decline in construction employment compares

with the 5-year average increase from April to May of 20 per cent. The declines in the value of construction contracts awarded and in passenger automobile bill-of-sale registrations were also greater than the 5-year average decline from April to May, but the decline in bank debits was somewhat less than the 5-year average decline. As compared with May of last year, there was a substantital decline in all types of employment and in the value of construction contracts awarded, bank debits, and passenger automobile bill-of-sale registrations. Business conditions in Cleveland in May were less satisfactory than in April or than in May, 1929.

CHART VIII

BUSINESS CONDITIONS IN CLEVELAND

Average Month 1926 Equals 100



* Value of Construction Contracts Awarded in Cleveland

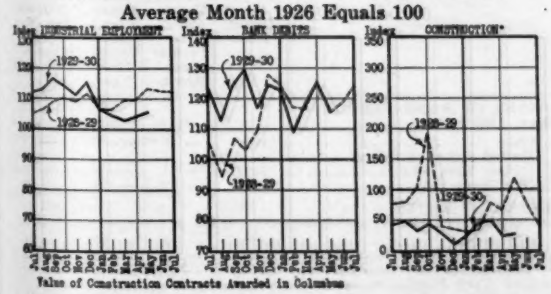
Columbus

There was an increase in Columbus in May from April in all types of employment and in the value of construction contracts awarded, but a decrease in bank debits and passenger automobile bill-of-sale registrations. The increases in industrial and manufacturing employment in Columbus in May from April were greater than the 5-year average April-to-May increase, but the increase in construction employment was less than the 5-year average April-to-May increase, as was also the increase in the value of construction contracts awarded. The decline in bank debits, however, was less than the usual seasonal decline, but the decline in passenger automobile bill-of-sale registrations was greater than the usual decline. As compared with May, 1929, all types of employment in Columbus have declined as has also the value of construction contracts awarded, and passenger automobile bill-of-sale registrations. Bank debits in May were slightly greater than in May, 1929. Business conditions in Columbus in May appear more favorable in comparison with April than in comparison with May, 1929.

CHART IX

BUSINESS CONDITIONS IN COLUMBUS

Average Month 1926 Equals 100



Value of Construction Contracts Awarded in Columbus

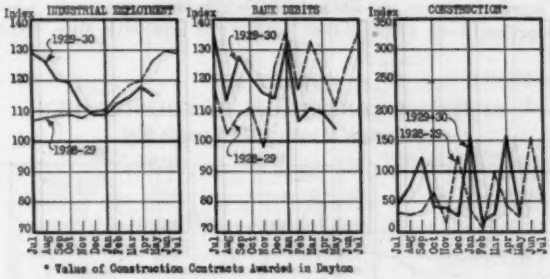
Dayton

The 2 per cent decline in May from April in industrial and manufacturing employment is in contrast with the 5-year average April-to-May increase of 2 per cent, while the increase in construction employment is considerably less than the usual seasonal increase from April-to-May. The decline in the value of construction contracts awarded in May from April was considerably greater than the 5-year average decline, but the decline in bank debits was less than the 5-year average decline from April to May, and the decline in passenger automobile bill-of-sale registrations was no greater than the 5-year average April-to-May decline. As compared with May, 1929, there was a decline in industrial and manufacturing employment, bank debits and passenger automobile bill-of-sale registrations, but an increase in construction employment, and in the value of construction contracts awarded. Employment conditions appear to have declined in May both as compared with April and as compared with May, 1929. Although the value of construction contracts awarded in May declined as compared with the previous month, there has been substantial improvement as compared with the same month of last year. While the automobile business was no worse in May than in April, it has declined considerably from May, 1929.

CHART X

BUSINESS CONDITIONS IN DAYTON

Average Month 1926 Equals 100



* Value of Construction Contracts Awarded in Dayton

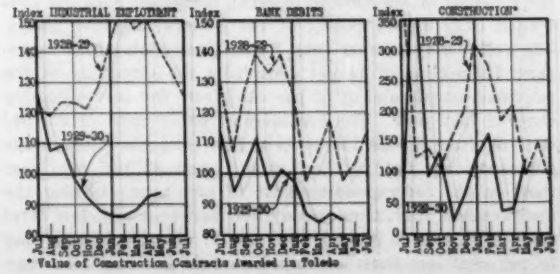
Toledo

The gains in industrial and manufacturing employment in May from April in Toledo were more than seasonal gains, although the decline in construction employment was somewhat more than a seasonal decline, as was also the decline in bank debits and passenger automobile bill-of-sale registrations. The increase in the value of construction contracts awarded in Toledo in May from April

CHART XI

BUSINESS CONDITIONS IN TOLEDO

Average Month 1926 Equals 100



* Value of Construction Contracts Awarded in Toledo

was substantially greater than the 5-year average April-to-May increase. As compared with May, 1929, all types of employment have shown substantial declines, as have also bank debits and passenger automobile bill-of-sale registrations. With the exception of the improvement in the construction industry in Toledo, business conditions appear to have declined in May both as compared with April and with May, 1929.

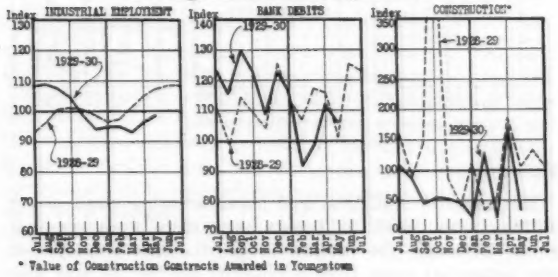
Youngstown

The increase in industrial and manufacturing employment in Youngstown in May from April was greater than the 5-year average April-to-May increase, but the decline in construction employment compares with a substantial 5-year average increase from April to May. The decline in the value of construction contracts awarded in May from April was substantially greater than the average seasonal decline, and the decline in bank debits was somewhat less than the average April-to-May decline. The increase of 1 per cent in passenger automobile bill-of-sale registrations compares favorably with the 5-year average decline of 16 per cent from April to May. As compared with May, 1929, industrial and manufacturing employment declined 8 per cent in May, and construction employment, 43 per cent. The value of construction contracts awarded and passenger automobile bill-of-sale registrations filed in May showed substantial declines from May of last year. With the exception of the increases in industrial and manufacturing employment in Youngstown in May from April, business conditions in Youngstown appear to have declined both as compared with April and with May, 1929.

CHART XII

BUSINESS CONDITIONS IN YOUNGSTOWN

Average Month 1926 Equals 100



* Value of Construction Contracts Awarded in Youngstown

THE TREND OF BUSINESS

Banking and Credit Conditions

The downward course of money rates was resumed in May, and the outlook for still easier money seems assured in view of the continued decline in commodity prices and the dullness of business in general, combined with the continued easy money policy of the Federal Reserve banks. The call money rate on June 7 was 3 per cent, which represented a decline of 14 per cent from the same day of the previous month, and of 50 per cent from the corresponding date of last year. The commercial paper rate of 3.5 per cent on June 7 was 13 per cent less than the rate on the corresponding date of last month, and 42 per cent less than on the corresponding date of last year. During the last week in May, time money declined to a new low level since 1924, and on June 7, time money at 3.25 per cent was 19 per cent less than on May 7, and 62 per cent less than on June 7, 1929. Call money on the stock exchange has been plentiful in supply at 3 per cent, and in the outside market funds have remained unabsorbed at 2½ per cent, the rate in the outside market falling as low as 2 per cent on June 13.

On June 4, brokers' loans in New York city were only slightly greater than on May 4, and were 22 per cent less than on June 4, 1929. Following the severe stock market decline at the close of April, there was a reduction of $267,000,000 in brokers' loans during the first two weeks of May. It is well to recall, however, that this reduction followed an expansion of $785,000,000 during the previous nine weeks. The expansion of brokers' loans was renewed slowly during the third and fourth weeks of may, during which period $15,000,000 was added to the amount outstanding. There was a further expansion of $79,000,000 during the first week of June, bringing the total increase for the three weeks to 94 million dollars. On June 4, the grand total of loans to brokers was $4,101,000,000, as compared with $5,284,000,000 on June 5, 1929; a decline of well over a billion dollars. For the week ended June 11, brokers' loans declined $103,000,000, thus erasing the $94,000,000 expansion of the past three weeks, and $9,000,000 in addition.

Member bank borrowing from Federal Reserve banks increased in May from April, although the amount of such borrowing in May was substantially less than in May of last year. The fact that most of this borrowing occurred at the New York Federal Reserve bank suggests the growth in brokers' loans for "own account'" of the New York member banks, who maintain their reserves by borrowing from the Federal Reserve. The Federal Reserve banks increased both their holdings of United States securities and of bills bought in the open market in May, thus continuing the easy money and credit policy of the past. On June 4, the amount of bills bought in the open market was 8 per cent greater than on May 4, and 68 per cent greater than on the same date a year ago. Investments in United States bonds on June 4 were 3 per cent greater than on the same day of May, and 269 per cent greater than on June 4, 1929 (Table IX).

TABLE IX

BANKING CONDITIONS

Source: Federal Reserve Board

Item	Latest Data	Change from Corresponding Period Last Month	Change from Corresponding Period Last Year	Average Jan.-May 1930 Change from 1929
INDEX OF BANK DEBITS:* May, 1930		%	%	%
Ohio	105	— 8	— 7	— 10
United States outside of New York City	109	+ 1	— 8	— 9
New York City	133	— 2	— 25	— 23
INTEREST RATES, JUNE 7, 1930:				
Call Money	3.00%	— 14	— 50	— 50
Commercial Paper (60-90 days)	3.50%	— 13	— 42	— 22
Time Money (4-6 months)	3.25%	— 19	— 62	— 48
New York Federal Reserve Rediscount Rate	3.00%	0	— 40	— 25
FEDERAL RESERVE ITEMS, JUNE 4, 1930:				
Investment in U. S. Bonds*	$543.8	+ 8	+269	+170
Bills Bought in Open Market*	$189.2	+ 8	+ 68	— 12
Member Banks Rediscounts*	$239.7	+ 1	— 75	— 65
Reserve Ratio	82.2	— 1	+ 10	+ 14
LOANS TO BROKERS, JUNE 4, 1930:				
(New York City)*	$4,101	+ 1	— 22	—

* In millions.

The net import of gold into the United States in April was substantially greater than in March, and for the first four months of 1930, the total net import was 64 million dollars greater than for the corresponding period of last year (Table X).

TABLE X

NET GOLD IMPORTS INTO THE UNITED STATES 1929-1930

(In Thousands of Dollars)

Month	1928-29*	1929-30*
November	$ 6,676	$—23,166
December	23,304	—64,426
January	47,199	3,960
February	25,488	59,991
March	24,835	55,478
April	23,093	65,432
Six Months Ending with April	$ 150,595	$ 97,269
January to April Total	120,615	184,861
Twelve Months Ending with April	— 60,386	239,315

* (—) Denotes net export of gold.

Iron and Steel

The increase of 1 per cent in the average daily production of pig iron in Ohio in May from April compares favorably with an average decline of 1 per cent for this period during the past 5 years. The decline of 2 per cent in the average daily production of pig iron in the United States in May from April was substatially in line with the average April-to-May change for the past 5 years. The average daily production of pig iron in Ohio in May was 22 per cent less than in May, 1929, and for the first 5 months of 1930 was 19 per cent behind the corresponding period of last year. The average daily pig iron production in the United States in May was 17 per cent behind May, 1929, while the average for the first 5 months of 1930 was 14 per cent less than for the corresponding period of 1929. The decline of 7 per cent in the average daily production of steel in the United States in May from April was substantially greater than the average decline for the same period during the past 5 years, and the average daily production in May was 24 per cent behind May, 1929. For the first 5 months of 1930, the average daily production of steel in the United States was 15 per cent less than in the corresponding period of last year.

TABLE XII

IRON AND STEEL CONDITIONS

Sources: Iron Trade Review and Iron Age

Item	May, 1930	Change May 1930 from April 1930	Average Change May from April 1925-29	Change May, 1930 from May 1929	Average Jan.-May, 1930 Change from 1929
PRICES:		%	%	%	%
Pig Iron (per ton)	$ 17.60	— 1	—	— 6	— 3
Finished Steel (per lb.)	.02221	— 2	—	— 8	— 5
Scrap (No. 1 wrought at Chicago, per ton)	12.69	— 4	—	—23	—16
UNFILLED ORDERS U. S. STEEL CORP.:					
(tons)	4,059,227	— 7	— 9	— 6	+ 3
OPERATIONS:					
Average Daily Pig Iron Prod. (tons):					
Ohio	22,787	+ 1	— 1	—22	—19
United States	104,283	— 2	— 2	—17	—14
Average U. S. Daily Steel Prod. (tons)	149,066	— 7	— 3	—24	—15

The 7 per cent decline in the unfilled orders of the Untied States Steel Corporation in May from April was less than the 5-year average April-to-May decline, but the unfilled orders for May were 6 per cent less than in May, 1929.

The average price of pig iron declined 1 per cent in May from April, and was 6 per cent less than in May, 1929, while the average for the first 5 months of 1930 was 3 per cent behind the average for the same period of last year. The price of finished steel declined 2 per cent in May from April, was 8 per cent less than in May, 1929, and averaged 5 per cent less during the first 5 months of this year than during the corresponding period of last year. Scrap prices declined 4 per cent in May from April, 23 per cent from May, 1929, and averaged 16 per cent less for the first 5 months of 1930 than for the same period of 1929.

The Stock Market

The trend of the market throughout May was upward, with only a minor recession extending from the middle of the second week to the middle of the third week, but considerably less than half the ground lost in April, when the worst reaction experienced since December carried the total list more than 20 points below the high point of April,

TABLE XI

INDEXES OF COMMON STOCK PRICES — BY GROUPS

Source: Standard Statistics Company

Group	June 4, 1930	Change in Points from May 7, 1930	1930 Range High	1930 Range Low
404 Stocks Combined	171.5	+ 4.4	184.2	153.0
337 Industrials	161.4	+ 4.4	174.1	146.0
33 Rails	132.6	— 2.0	145.5	132.6
34 Utilities	253.9	+ 10.7	267.4	202.2
4 Agricultural Implements	359.0	— 18.9	413.0	276.4
10 Airplane	522.3	— .3	662.7	340.6
8 Apparel	75.6	— 3.3	92.0	74.1
13 Automobiles	154.1	+ 9.7	173.6	128.1
15 Auto. Parts and Accessories	153.0	+ 1.3	185.8	147.3
7 Auto Tires	101.7	+ 5.8	118.6	88.5
13 Bldg. Equipment and Supplies	114.1	— 1.4	132.0	112.0
9 Chemical (Industrial)	257.0	+ 2.6	292.7	231.0
4 Coal—Anthracite	62.9	+ .1	67.2	61.6
5 Coal—Bituminous	110.2	+ 3.7	131.5	105.7
9 Copper and Brass	151.7	+ 11.9	204.1	139.8
12 Cotton Goods	80.6	— 2.5	93.9	80.6
7 Drugs, Medicine and Cosmetics	161.0	+ .4	174.7	158.7
4 Electrical Equipment	335.3	+ 20.8	372.5	250.9
4 Fertilizer	69.2	+ 1.4	81.6	59.0
20 Food Products	164.4	+ 8.8	164.4	144.2
13 Household Produce and Supplies	147.7	+ 2.8	150.5	126.2
5 Lead and Zinc	121.9	+ 1.6	142.0	120.2
4 Leather	58.9	— 1.9	73.0	47.0
10 Machinery	169.7	+ 2.8	178.7	139.7
5 Meat Packing	105.6	+ 6.2	109.7	99.4
9 Misc. Mining and Smelting	222.1	+ 3.5	265.3	209.5
9 Miscellaneous Manufacturing	219.0	+ 7.2	230.7	194.0
6 Miscellaneous Services	156.3	+ 2.3	170.7	141.8
5 Office and Business Equipment	247.6	+ 10.6	284.2	235.0
16 Oil	147.9	+ 1.9	159.3	124.0
6 Paper	156.9	+ 5.7	176.2	129.0
10 Radio, Phonograph, Etc.	346.6	+ 28.5	428.4	230.5
9 Railroad Equipment	108.6	— 1.5	130.0	107.7
5 Rayon	82.8	+ 2.4	93.8	77.6
25 Retail Trade	117.7	+ 5.0	124.1	112.7
7 Shipping and Shipbuilding	140.8	+ 6.9	148.7	126.6
3 Shoes	133.1	— 1.4	146.5	132.1
6 Silk Goods	53.6	+ 4.7	68.9	55.7
10 Steel	173.4	+ .9	201.2	170.7
9 Sugar	62.6	— 5.9	77.2	62.6
30 Textiles	76.4	0	85.9	75.2
7 Theatres, Moving Pictures, Etc.	146.9	+ 2.5	154.1	82.4
10 Tobacco Products	160.1	+ 3.5	161.0	138.9
4 Woolen Goods	52.9	+ 5.9	64.7	32.5
13 Electric, Gas, Water, Etc. Holding Companies	341.7	+ 20.2	363.5	254.1
7 Electric, Gas, Water, Etc. Operating Companies	274.6	+ 8.1	283.6	213.5
5 Telegraph and Telephone	183.7	+ 4.3	196.4	164.7
9 Traction, Motor Bus, Etc.	80.5	— 2.0	88.0	74.3

was recovered in the May rise.

During the period from May 7 to June 4, the index of 404 stocks combined gained 4.4 points, as did also the index of 337 industrials. The May increase in stock prices was experienced in 34 of the 46 groups of stocks listed in Table XI; the increases ranging from .1 of 1 point in the anthracite coal group to 28.5 points in the radio and phonograph group. Of the 12 groups showing a decline in May, agricultural implements showed the greatest decline. Other groups showing declines in May were: the rails, the airplane, the building equipment, the cotton goods, the leather, the railroad equipment, the shoes, the sugar, and the traction and motor bus groups. In all the groups showing a decline, except the agricultural implements group, the decline was less than 5 points, and in most cases less than 2 points.

During the first two weeks in June the market suffered another sinking spell more violent than that of April, when many stocks broke through their previous lows for the year. The decline continued through the third week in June with little in the general business situation upon which to base any definite hope for immediate revival.

Construction Contracts Awarded

The value of construction contracts awarded in 37 Eastern states in May was 5 per cent less than in April, and 22 per cent less than in May, 1929, while the cumulative total for the first five months of 1930 was 18 per cent behind the total for the same period last year (Table XIII). The April-to-May decline of 5 per cent is slightly greater than the 5-year average April-to-May decline of 4 per cent, indicating something more than a seasonal recession in May. The decline of 22 per cent from May of last year becomes more significant when it is recalled that the construction industry was in a depressed condition throughout 1929. The decline in the value of construction contracts awarded in May as compared with April was caused by the decline in the New England, the Metropolitan New York, the Middle Atlantic, the Chicago, the Kansas City, and the Texas districts. Six of the thirteen districts shown in Table XIII showed an increase in the value of contracts awarded in May as compared with April. As compared with May, 1929, three districts—the Up-state New York, the New Orleans Territory, and the Southeastern Territory—showed substantial increases in the value of construction contracts awarded, although all the other districts showed substantial declines. Although the total volume of contracts for the first five months of 1930 declined substantially from the corresponding period of last year, three districts—the Up-state New York, the Kansas City Territory, and the Southeastern Territory—showed increases.

TABLE XIII

CONSTRUCTION CONTRACTS AWARDED IN 37 EASTERN STATES AND BY DISTRICTS

(In Thousands)

Source: F. W. Dodge Corporation

District	May, 1930	Change May, 1930 from Apr., 1930	Change May, 1930 from May, 1929	Average Jan.-May 1930 Change from 1929
New England States...	$ 36,514	— 13%	— 17%	— 16%
Metropolitan New York and Vicinity	96,209	— 5	— 3	— 15
Up-State New York....	24,478	+ 23	+ 6	+ 13
Middle Atlantic States..	37,394	— 40	— 37	— 23
Pittsburgh Territory....	57,009	+ 4	— 20	— 9
South Michigan.....	22,171	+ 3	— 54	— 48
Chicago Territory.....	59,468	— 8	— 42	— 36
Central Northwest.....	11,015	+ 1	— 29	— 16
St. Louis Territory.....	21,883	+ 18	— 17	— 29
Kansas City Territory..	18,899	— 21	— 23	+ 16
Texas	14,368	— 37	— 34	— 3
New Orleans Territory.	14,300	+124	+ 12	— 26
Southeastern Territory.	43,709	+ 31	+ 13	+ 3
Total of 37 Eastern States	$457,416	— 5	— 22	— 18

During April and May the index number for residential floor space moved upward slowly while the index number for non-residential building continued to fall. *The Graphic Review* points out that, in the past, this condition of opposing trends, with residential building moving in the upward direction has been characteristic at the beginning of building revivals after a recession. In spite of the gradual upward trend in the volume of residential building during April and May, residential contracts for the first five months of 1930 were $448,000,000 less than in the corresponding period of last year, while non-residential contracts were $118,000,000 behind, and public works and utilities, $101,000,000 ahead.

Automobile Production

Passenger automobile production in the United States increased in April from March, but was 30 per cent less than in April of last year, and averaged 32.7 per cent less for the first four months of 1930 than for the corresponding period of 1929. Truck production in the United States also increased in April from March but was 20 per cent less than in April, 1929, and 17.9 per cent less for the first four months of this year than for the same period of last year (Table XIV). General Motors' sales to dealers in the United States increased in April from March, but were 18 per cent less than in the same month of last year, and averaged 18.2 per cent less for the first four months of 1930 than for the corresponding period of 1929. Dealers sales in the United States and in foreign countries also increased in April from March, but were 33.8 per cent less than in April, 1929, and averaged 30.8 per cent less during the first four months of this year than during the same period of last year.

TABLE XIV

AUTOMOBILE PRODUCTION IN THE UNITED STATES AND CANADA, AND GENERAL MOTORS' SALES

Sources: U. S. Department of Commerce and General Motors' Corporation

Group	April, 1930	Change Apr., 1930 from Mar., 1930	Change Apr., 1930 from Apr., 1929	Average Jan.-Apr., 1930 Change from 1929
PASSENGER CAR PRODUCTION:		%	%	%
United States.....	374,606	+11.6	—30.1	—32.7
Canada	20,872	+21.6	—39.3	—45.5
U. S. and Canada.....	395,478	+12.0	—30.7	—33.4
TRUCK PRODUCTION:				
United States.....	67,459	— 5.1	—20.0	—17.9
Canada	3,385	— 5.0	—54.9	—56.5
U. S. and Canada.....	70,844	+ 4.5	—22.9	—21.3
GENERAL MOTORS' SALES:				
Dealers' Sales, U. S...	142,004	+14.7	—18.0	—18.2
Division Sales, U. S...	132,365	+12.1	—25.1	—22.7
Dealers' Sales, U. S. and Foreign	150,661	+10.8	—33.8	—30.8

Retail Trade

Department store sales in the United States showed a slight decline in May from April according to the Federal

Reserve report on department store sales, and for the first five months of 1930 were 3 per cent less than for the corresponding period of 1929. All but 4 of the 12 districts shared in the May decline in sales, and the declines ranged from 1 per cent in the Philadelphia district to 10 per cent in the Dallas district. The April-to-May increases amounted to 1 per cent in the Boston and Minneapolis districts, .3 of 1 per cent in the Richmond district, and 5 per cent in the New York district. All the districts except the Boston, the New York, and the Richmond districts showed a decline for the first five months of 1930 as compared with the same period of 1929.

According to the Federal Reserve report, department store sales in the Cleveland district in May were 3 per cent less than in May, 1929, while for the first five months of 1930 they were 6 per cent behind the same period of last year.

Wholesale Prices

On June 3, the wholesale price index showed an increase of 0.5 of one point from the index of May 6, but a decline of 11.4 points from June 4, 1929. The slight increase in the price index in June from May was due primarily to increases in the farm products, the food products, and the metal products groups; all other groups showing a slight decline, the decline being greatest in the textiles products and the miscellaneous groups. The decline of 11.4 points

TABLE XV

INDICES OF U. S. WHOLESALE PRICES BY COMMODITY GROUPS—JUNE 1, 1930

Average Month 1913 Equals 100

Source: The Annalist

Commodities	Index May 6 1930	Index June 3 1930	Change in points from May 6, 1930	Change in points from June 4, 1929
Farm Products	125.1	127.0	+ 1.9	—11.5
Food Products	134.5	137.2	+ 2.7	— 7.6
Textile Products	127.4	124.7	— 2.7	—23.4
Fuels	156.8	155.1	— 1.7	— 8.3
Metals	113.1	113.4	+ .3	—14.9
Building Materials	149.8	148.8	— 1.0	— 4.3
Chemicals	130.8	129.7	— 1.1	— 5.5
Miscellaneous	115.7	109.2	— 6.5	—21.5
ALL COMMODITIES	132.0	132.5	+ 0.5	—11.4

from June 4, 1929, was experienced in all groups of commodities. The decline from June of last year ranged from 4.3 points in the building materials group to 23.4 points in

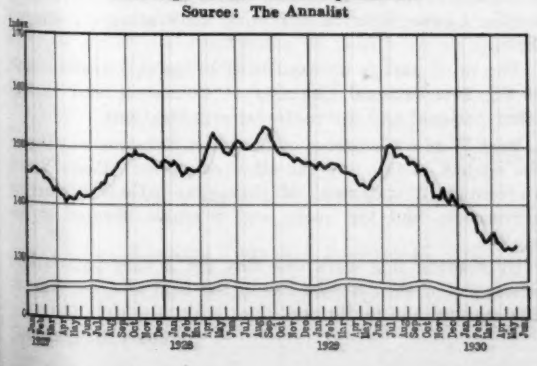
CHART XIII

WEEKLY INDEX OF WHOLESALE PRICES

January 1926 to June 3, 1930

Average Month 1913 Equals 100

Source: The Annalist



the textile products group. The prices of metal products in June were almost 15 points behind the prices of last June, and the prices of farm products, 12 points behind those of the same month of last year.

Foreign Trade and Prices

The merchandise exports of the United States declined 10 per cent in April from March, 20 per cent from April, 1929, and 19 per cent during the first four months of 1930 as compared with the same period last year. The merchandise imports of the United States increased 3 per cent in April from March, but were 25 per cent less than in April,

TABLE XVI

FOREIGN TRADE OF CHIEF INDUSTRIAL NATIONS

(In Millions)

Source: U. S. Department of Commerce

Country	Mar., 1930	Apr., 1930	Change Apr., 1930 from Mar., 1930	Change Apr., 1930 from Apr., 1929	Average Jan.-Apr. 1930 Change from 1929
UNITED STATES (Dollars)			%	%	%
Mdse. Exports	369.6	334.0	— 10	— 20	— 19
Mdse. Imports	300.0	308.0	+ 3	— 25	— 22
Excess of Exports	69.6	26.0	— 63	+251	— 4
Gold Exports	.3	.1	— 63	— 93	+ 58
Gold Imports	55.8	65.5	+ 18	+165	+ 54
Excess of Imports	55.5	65.4	+ 18	+183	+ 53
UNITED KINGDOM (Pounds Sterling)					
Exports	53.9	46.9	— 13	— 22	— 13
Imports	93.4	83.9	— 10	— 19	— 11
Excess of Imports	39.5	37.0	— 6	— 16	— 8

1929, and 22 per cent less during the first four months of 1930 than during the corresponding period of last year. The rather marked decline in exports in April from March combined with the slight increase in imports for the same period is reflected in the large decrease in the excess of exports in the United States in April from March. Although the excess of exports in April as compared with last April seems large, it is significant that there was a decline of 4 per cent in the excess of exports during the first four months of 1930 as compared with the first four months of 1929 (Table XVI). Gold exports from the United States declined 63 per cent in April from March and 93 per cent from April of last year. The average for the first four months of 1930, however, was 58 per cent greater than for the corresponding period of last year. Gold imports of the United States increased in April from March, were substantially greater than in April of last year, and for the first four months of this year were 54 per cent greater than for the corresponding period of last year. For the first four months of 1930 the excess of gold imports increased 53 per cent as compared with the first four months of 1929.

The merchandise exports of Great Britain declined substantially in April from March, and were 22 per cent less than in April, 1929, while the average for the first four months of 1930 was 13 per cent behind the average for the corresponding period of last year. The merchandise imports of Great Britain also declined in April from March and from April of last year, and, for the first four months of 1930, were 11 per cent behind the average for the first four months of 1929. The excess of imports into Great Britain declined 6 per cent in April from March, 16 per cent from April, 1929, and 8 per cent during the first four months of 1930 as compared with the same period of

1929. Wholesale prices in the United States declined 1.9 points between May 4 and June 2, and 7.8 points from June 2, 1929. On June 2, wholesale prices in Great Britain were 1 point lower than on May 4, and 9.9 points lower than on June 2, 1929. In Italy, wholesale prices on June 2 were slightly higher than on May 4, but almost 10 points lower than on the corresponding date of last year (Table XVII).

TABLE XVII

INTERNATIONAL WHOLESALE PRICE INDICES

1926 = 100

Country	Index May 4, 1930	Index June 2, 1930	Change in points from May 4, 1930	Change in points from June 2, 1929
United States (Fisher's)	89.7	87.8	— 1.9	— 7.8
Great Britain (Crump's)	81.1	80.1	— 1.0	— 9.9
Italy (Milan Chamber of Commerce)	63.5	64.2	+ 0.7	— 9.9

RESEARCHES OF THE BUREAU OF BUSINESS RESEARCH

Simplified Procedure in the Statistical Analysis of Time Series

By

Howard G. Brunsman

The Bureau of Business Research has ready for distribution a bulletin entitled, *Simplified Procedure in the Statistical Analysis of Time Series*, which presents a compilation of economical methods of making various statistical computations required in the analysis of time series. This bulletin contains time saving procedures developed in the statistical unit of the Bureau and presented in simplified form by Howard G. Brunsman.

The procedure presented covers the four major types of computation used in the analysis of time series; moving averages and totals, curve fitting, seasonal variation, and correlation.

The chapter devoted to moving averages includes procedures for the computation of all types of moving averages, both approximately centered and adjusted to center opposite original value.

Methods of fitting straight line, exponential, and parabolic trends to time series by the cumulative method are presented. Simplified formulae and constants to facilitate the computing of the trend constants are included.

A definite step procedure for the computation of indexes of seasonal variation of the ratio to ordinate, ratio to moving average, and median link relative types are included in the study as well as methods of correcting for seasonal variation.

Methods for computing correlations on both grouped and ungrouped data are presented.

The last chapter contains columnar set-up and indexed outline of method necessary to carry a time series through any combination of the procedures listed above.

As an example of the arrangement of the study there is presented here a portion of the section devoted to curve fitting.

Straight Line Trend

Method	Example
Compute ΣXY and ΣY	Compute ΣXY and ΣY
Place the last value in an adding machine. Throw a sub-total. Place the next to the last value in the adding machine; throw a sub-total. Continue this operation of placing each value in the adding machine and throwing a sub-total after each until all of the values have been added.	The total of the actual items is computed starting at the bottom of the series (with sub-totals after each item).
Compute the total of the actual values without sub-totals. This total should check with the largest sub-total computed above. List this total at the top of the sheet. Mark it ΣY.	*First Tape* With sub-total (b) 94 94 S 97 181 S 43 224 S 22 246 S 97 343 S 48 391 S 36 427 S 25 ΣY 452*
Compute the total of the sub-totals on the first tape computed.	The total of the sub-totals on the tape (b) above is computed.
Recompute this total as a check. List this total at the top of the sheet. Mark it ΣXY.	*Second Tape* 94 181 224 246 343 391 427 452 ΣXY 2358*

The price of this Bulletin is 50 cents; copies may be secured from The Ohio State University Press.

BOOK REVIEWS

International Year Book on Civil and Commercial Arbitration, Edited by Dr. Arthur Nussbaum, New York City, Oxford University Press.

The first chapter of this book is a statement of the problems of International Arbitration by the Editor, who is a professor at Berlin University. Then follow discussions of the status of arbitration in each of the leading European countries and in the United States. In each case the article is written by a citizen of the particular country, who has given special study to the subject. For example, that dealing with commercial Arbitration in the United States was written by Professor Wesley A. Sturges, of the Yale University Law School. Professor Sturges is preeminently qualified, having worked in the field for a number of years in collaboration with the American Arbitration Association. The latter organization is responsible, at least in part, for this book being published and has done more than any other agency for the cause of commercial arbitration in the United States.

The book also contains copies of the laws of the various European countries and the Federal and New York Arbitration Laws. Treaties involving arbitration are also set forth.

The third part is an exposition of the Arbitration rules of the International Chamber of Commerce and various other national and international organizations.

Part IV is a discussion of the court decisions bearing on the subject in this and the other countries. Parts V and VI contain a statement of the organizations furthering arbitration, and the books and journals devoted to the subject.

By reading this work one may get a very satisfactory conception of the development of the field of arbitration in this country and in Europe.

Robert M. Hunter

How to Find the Right Vocation, by Harry Dexter Kitson, Harper & Brothers, New York City, 191 pp., $2.50.

Those who expect to find a magical open sesame to fame and fortune in Professor Kitson's modest text on finding one's place in life will be sure to meet with disappointment. Professor Kitson makes little pretension to erudite infallibility; rather he confines himself to the homely common sense of one who has seen much high-flown vocational guidance theory come to grief in a matter-of-fact world. The author professedly is more intent in helping his hopeful or anxious readers to fit themselves into the jobs accessible to them than to shape them to the pattern of jobs they might prefer.

He does make some sort of quantitative attack upon the question of training requirements, rate of promotion, income, etc., out of biographical material, and emphasizes the need of concretely mapping out one's ascent up the ladder and urges the prudence of "counting the rungs of the ladder." In speaking of how to "hit the boss for a raise" the author's method appears at its best and its worst. The net product seems to be a sort of enlightened *laissez faire* modified by an alert opportunism. Most of the author's procedure under such inviting captions as "Locating One's Self with Scientific Precision" is handled almost wholly in qualitative fashion. Even so the author manages to bear in upon the reader's consciousness the need and the possibilities for making headway in finding "the right vocation" by discriminating canvass of areas of opportunity, and by giving direction and vigor to programs of self-advancement by tying up with schedules, budgets, and progress charts.

Real Wages, by Paul Douglas, Houghton, Mifflin Company, 1930, 682 pp., $7.50.

This most recent text of Paul Douglas raises the timely and pertinent question as to the nature and reality of prosperity. Has prosperity been much more than the well-being of the crowd that has the best press agent?

The survey of the economic status of wage earners (non-agricultural) made by Professor Douglas discloses a substantial net increase in real income since 1914 and particularly since 1919. Up to 1914 the advance had been slight indeed, for that year it was barely 4 per cent higher than during the 90's. If agricultural income takers be included this could have been raised to a 7 per cent improvement over the low levels of the 90's. The reason for the rather dramatic advance in purchasing power of wage earners since 1914 is attributed by Douglas to several causes, not the least of which has been the decline in size of the working-man family.

The social and economic consequences arising from the disposition of this gain in income is instructively analyzed by Professor Douglas, who has provided in this work a valuable reference book to all who are interested in either the problem of the distribution of wealth or of the economic status of the American worker.

Recent Growth of the Electric Light and Power Industry, by Charles O. Hardy, Brookings Institution, Washington, D. C., 1929, 59 pp., 50¢.

This pamphlet is a study of the relation of operating costs and capitalization changes in the public utility field to the rise in the price of stocks of these companies. The following excerpt from the summary of the study will show the main conclusions:

"The ratio of operating expenses to gross revenues (1920-1927) showed a rapid decline. This decline was apparently due, in part, to declines in the price of fuel, and, in part, to improved operating efficiency.

"Taxes increased slightly in proportion to gross income, the increase being greater in Federal than in State taxes.

"The most of capital borrowed or obtained through preferred stock issues declined sharply, mortgage bond yields declining more than preferred stock yields.

"The prices of the common stocks of the large public utility corporations showed an extraordinary increase. This was due to a wide variety of factors including: (a) a decrease in the operating ratio; (b) a decrease in the interest rate paid on borrowings and the dividend rate on preferred stocks; (c) a decrease in the proportion of common stock to total capitalization; and (d) a general increase in the prices of corporate common stocks."

The research is a sound and useful analysis of the financial position of public utility companies.

PRELIMINARY REPORT ON OHIO EMPLOYMENT FOR JUNE

A preliminary index of employment in Ohio, based on reports from 588 firms on the fifteenth of June, shows a decline of 3.6 per cent in total industrial employment in the State in June as compared with May. The decline in total industrial employment in June from May is in contrast to an average increase from May to June of .7 of 1 per cent for the five-year period, 1925 to 1929. Employment in 427 manufacturing establishments of the State was 4.1 per cent less in June than in May, which was a decline considerably in excess of the five-year average May-to-June decline of .1 of 1 per cent. Employment in 31 non-manufacturing industries declined .5 of 1 per cent, which is in contrast to a five-year average May-to-June increase of 1.7 per cent. Construction employment in June as reported by 130 concerns was 1.3 per cent greater than in May, which was considerably less than the five-year average May-to-June increase of 8.4 per cent. As compared with June of last year, construction employment showed a decline of 17.1 per cent, manufacturing employment of 18.9 per cent, non-manufacturing employment of 8.6 per cent, and total industrial employment of 17.2 per cent.

CONVENTION CALENDAR

June 28-July 4	Columbus, Ohio	National Education Association, J. W. Crabtree, Secretary, Washington, D. C.
August 11, 12, 13	Portsmouth, Ohio	The Ohio Retail Grocers and Meat Dealers Association, H. N. McConkey, Secretary, 423 Fahien-Tehan Building, Springfield, Ohio.

PUBLICATIONS OF THE BUREAU OF BUSINESS RESEARCH

Publications will be sent on the terms indicated below, subject to refund upon exhaustion of the supply.

Wholesale Grocery Studies

R- 1 Salesforce Compensation and Expense of Ohio Wholesale Grocers, Year 1924 (free in Ohio) $1.00
X- 3 Operating Results of Ohio Wholesale Grocers, Year 1923 (free in Ohio) ..... .50
X- 4 Operating Results of Ohio Wholesale Grocers, Year 1924 (free in Ohio) (out of print) ..... .50
X- 8 Operating Results of Ohio Wholesale Grocers, Year 1925 (free in Ohio) ..... .50
X- 9 Delivery Costs in the Wholesale Grocery Trade (free in Ohio) ..... .50
X-12 Operating Results of Ohio Wholesale Grocers, Year 1926 (free in Ohio) ..... .50
X-21 Operating Results of Ohio Wholesale Grocers, Year 1927 (free in Ohio) ..... .50
X-25 Operating Results of Ohio Wholesale Grocers, Year 1928 (free in Ohio) ..... .50

Department Store Studies

X- 1 Survey of Ohio Retail Dry Goods Advertising, Year 1924 ..... free
X- 6 Sales, Outstandings, and Advertising of Ohio Retails Dry Goods Dealers, Year 1925 (free in Ohio) ..... .50
X-13 Merchandise Returns in Department Stores
Section I—Reasons for Returns (price to resident of Ohio, $1.00) Regular price 1.50
Section II—Extent of Returns (price to residents of Ohio, $1.00) Regular price 1.50
Sections I and II (price to residents of Ohio, $2.00) Regular price 3.00
X-18 Administration of Personnel Functions in Ohio Department Stores ..... .50
X-27 The Cost of Handling Merchandise Returns (Complimentary with purchase of Merchandise Returns in Department Stores) ..... .25

Men's Clothing Store Studies

R- 5 The Ten-Payment-Plan of Retailing Men's Clothing ..... .50
X- 2 Survey of Ohio Retail Clothing Advertising, Year 1924 (out of print) ..... free
X-10 Influence of Ten-Payment-Plan on Prestige of Stores (complimentary with purchase of Ten-Payment-Plan) ..... .50
X-22 The Application of Piece Control to the Merchandising of Men's Clothing (free in Ohio) ..... .50

Furniture Store Studies

R- 2 A Uniform System of Accounts for Retail Furniture Dealers (price to residents of Ohio, $1.00) Regular price 2.50
R- 4 Salesforce Compensation and Expense in Retail Furniture Stores of the Ohio Valley, Year 1924 (free in Ohio) ..... .50
R-14—Instalment Credit in the Retail Furniture Trade ..... .50
X-14 Merchandise Repossessions in the Instalment Furniture Trade (out of print) ..... .50

General Marketing Studies

R- 3 Housewives' Buying Habits in Columbus, Ohio, Year 1924 (free in Ohio) ..... .50
R- 9 The Social and Economic Relations of the Farmers with the Towns in Pickaway County, Ohio ..... free
R-10 The Nature of Unfair Methods of Competition in the Retail Trade ..... .50
R-12 Ohio Ordinances Regulating Retail Competitive Practices (free in Ohio) ..... .50
X- 5 Content of Advertising Courses in Colleges of Commerce—Agency Suggestions ..... .50
X- 7 Training for Retail Advertising (out of print) ..... .50
X-17 Foreign Trade activities in Ohio (free in Ohio) ..... .50
X-24 Credit Losses in Foreign Trade (free in Ohio) ..... .50

Newspaper Studies

R-11 Analysis of Revenues and Expenses of Ohio Daily Newspapers ..... .50
X-11 Location, Circulation, and Rates of Ohio Daily Newspapers ..... .50

Building and Loan Association Studies

R 8 Money Lending Practices of Building and Loan Associations in Ohio (out of print) ..... .50
X-19 Historical Balance Sheet Analysis of Ohio Building and Loan Associations (free in Ohio) ..... .50

Studies of Industries

R- 6 The Construction Industry in Ohio (price to residents of Ohio, 50 cents) Regular price 1.00
X-23 Industrial and Commercial Ohio, Volumes I and II. The volumes are not sold separately. Price of the set (to residents of Ohio, $5.00) 7.50

Industrial Management Studies

X-20 Labor Management (price to resident of Ohio, $2.00) Regular price 3.00
R- 7 Ohio Employment Studies ..... .50
X-26 Material Control and Storeskeeping in Foundries and Machine Shops—(Price to residents of Ohio, $1.50) Regular price 3.00

Miscellaneous Studies

X-15 A Critical Analysis of the Bankruptcy Law in Ohio (free in Ohio) ..... .50
X-16 Accounting Requirements of a Small Hatchery (preliminary bulletin) ..... .50
X-28 Simplified Procedure in the Statistical Analysis of Time Series ..... .50
R-13 Operating Expenses in Ohio Accredited Hatcheries—1927 ..... .50

PROCEEDINGS OF OHIO CONFERENCE OF STATISTICIANS

April, 1927

Methods of Checking the Accuracy of Data, by H. A. Toops ..... .50
Mass Selling for Mass Production Evolving a Consolidated National Industrial Budget, by Charles H. Chase ..... .50

April, 1929

The Trend of Coal Demand, by F. G. Tryon ..... free

April, 1930

Proceedings of Ohio Conference of Statisticians, 1930 ..... .50

MANAGEMENT WEEK PROCEEDINGS

Proceedings of Management Week—1925 (all sections—clothbinding) 2.00

Office Management Section ..... .50
Production Section ..... .50
Marketing Section ..... .50
Accounting Section ..... .50

Proceedings of Management Week—1926

Business Statistics Section ..... .50
Industrial Management Section ..... .50
Elimination of Waste Material ..... .50

Proceedings of Management Week—1927

Cost Reports for Plant Managers, by Charles Reitell ..... .50
How Management Can Profit by Analyzing and Pooling Labor Turnover Experience, by Lloyd R. Miller ..... .50
What Is Management Engineering? by Hugo Deimer ..... .50
Management of Engineering Developments and Research, by L. A. Hawkins ..... .50
Psychological Factors in the Development of Genius, by H. A. Toops (out of print) ..... .50
Credit, Prices, and Prosperity, by Edith M. Miller ..... .50
Material Control and Storekeeping for a Small Plant, by L. C. Haaser ..... .50